

**Patent claims**

1. A method for the biological decomposition of a material comprising a silicon-carbon single bond  
5 characterized in that a mixture of the material and a microorganism population is incubated under anaerobic or microaerobic conditions with addition of an alternative electron acceptor.
- 10 2. The method according to claim 1, characterized in that the material comprising a silicon-carbon single bond is a material comprising polyorgano-siloxanes, organofunctional siloxanes, organo-silanol or their fragments.
- 15 3. The method according to claim 1 or 2, characterized in that the alternative electron acceptor is selected from the group fumarate, succinate, oxidized iron ions, sulfate or nitrate.
- 20 4. The method according to one of claims 1 to 3, characterized in that the anaerobic or microaerobic conditions are selected such that less than 5% of free or dissolved oxygen is  
25 present in the batch.
5. The method according to claim 4, characterized in that less than 1%, preferably less than 250 ppm, of free or dissolved oxygen is present in the  
30 batch.
6. The method according to one of claims 1 to 5, characterized in that the alternative electron acceptor is used in a concentration of 0.1-100 mM.
- 35 7. The method according to one of claims 1 to 6, characterized in that it is carried out at a temperature of 20 to 80°C, preferably at a

temperature of 30 to 70°C, in particular preferably at a temperature of 40 to 60°C.

- 5      8.    The method according to one of claims 1 to 7, characterized in that the incubation proceeds over a period of 1 to 200 h, preferably 10 to 150 h, in particular preferably 24 to 100 h.